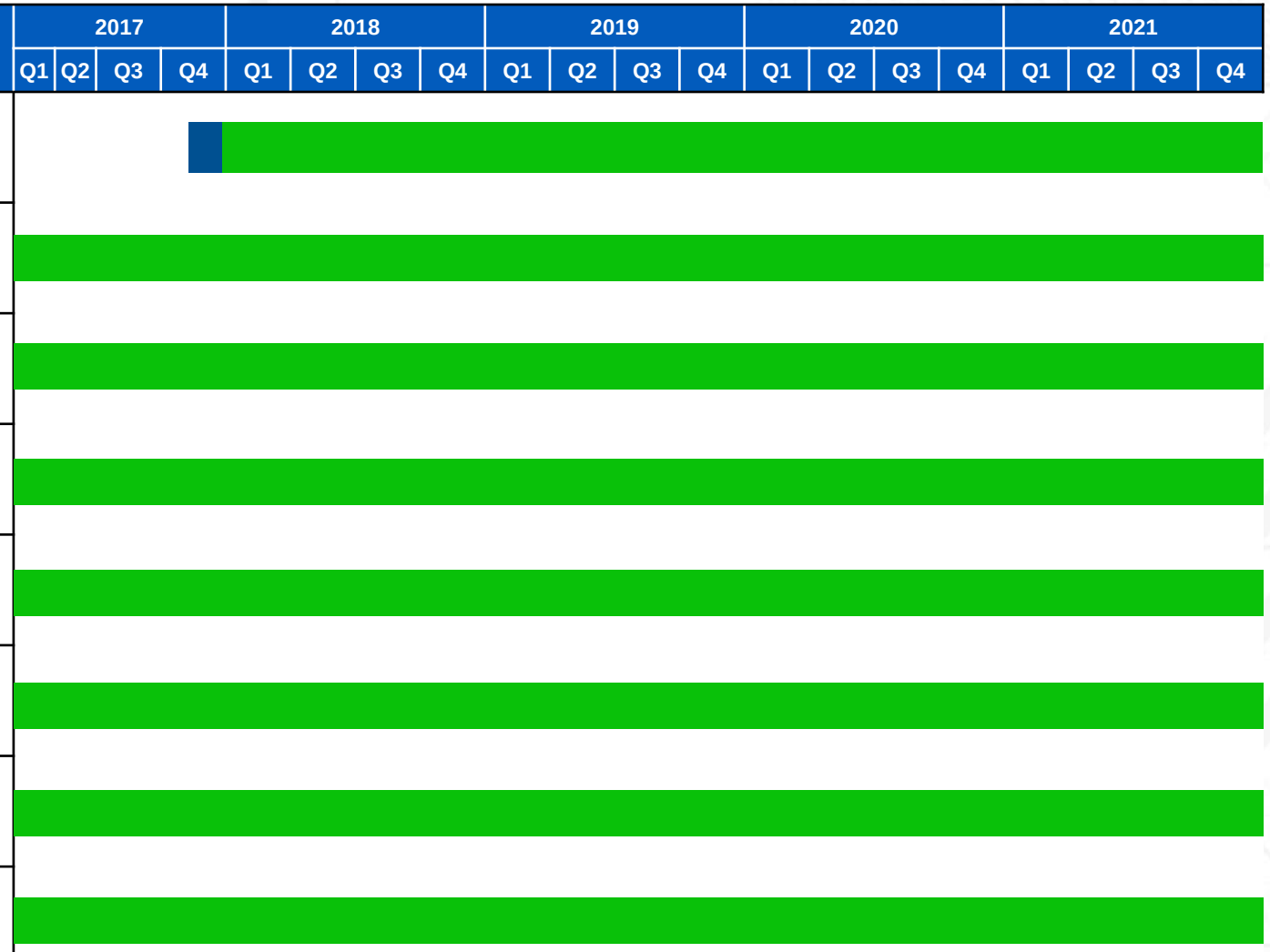
Cypress Roadmap:
Timing Solutions

Q1 2018

Clock Synthesizer Roadmap

	Product Family	Features	(Prod) [EOL]
High Performance	CY27430	4-PLL; Maximum Frequency: 700 MHz 12 Outputs; Diff[1] & SE[1]; PCIe 3.0; VCXO[2]; EMI[3]; 0.7-ps RMS Jitter[4] 1.8 V/2.5 V/3.3 V; Ind[5]; 48-QFN	
	CY27410	4-PLL; Maximum Frequency: 700 MHz 8 Outputs; Diff & SE; PCIe 3.0; VCXO; EMI; 0.7-ps RMS Jitter 1.8 V/2.5 V/3.3 V; Auto A[6] S[7]; 48-QFN	
	CCY254x/CY251x	1-4 PLL; Maximum Frequency: 200 MHz 3-9 Outputs; I²C; EMI; Low Power[8] 100-ps CCJ[9]; Ind; 1.8 V/2.5 V/3.0 V/3.3 V 8-SOIC; 8/16/20-TSSOP; 24-QFN	
Standard Performance	CY229x/CY2238x	3-4 PLL; Maximum Frequency: 166 MHz 3-8 Outputs; CMOS; Low Power 200-ps PPJ[10]; VCXO; Ind; 3.3 V/5 V 8/16/20-SOIC; 16-TSSOP	
	CY2429x	1-PLL; Maximum Frequency: 200 MHz 2-5 Outputs; HCSL, CMOS; EMI 75-ps CCJ; PCIe 1.1; Ind; Auto A 3.3 V; 16-TSSOP; 32-QFN	
	CY2239x	3-4 PLL; Maximum Frequency: 400 MHz 5-8 Outputs; LVPECL, CMOS; I²C 400-ps PPJ; VCXO; 3.3 V Ind; Auto A E[11]; 16-TSSOP; 32-QFN	
	CY22800/801/CY2581x	1-PLL; Maximum Frequency: 200 MHz 1-3 Outputs; CMOS; EMI 110-ps CCJ; VCXO; Ind; 3.3 V; 8-SOIC; 8-TSSOP	
	CY22050/150	1-PLL; Maximum Frequency: 200 MHz 6 Outputs; CMOS; I²C 250-ps PPJ; Ind 2.5 V/3.3 V; 16-TSSOP	



[1] Differential and single-ended outputs
[2] Voltage Controlled Crystal Oscillation
[3] Electro Magnetic Interference reduction using Lexmark profile
[4] Integrated phase noise across 12-kHz to 20-MHz offset
[5] Industrial grade: -40°C to +85°C
[6] AEC-Q100: -40°C to +85°C
[7] AEC-Q100: -40°C to +105°C
[8] Power Management options
[9] Cycle-to-cycle Jitter
[10] Peak-to-peak period Jitter
[11] AEC-Q100: -40°C to +125°C

Products supported by Longevity Program unless noted

Concept | Samples | Production | EOL - LTB | EOL - LTS

CYPRESS EMBEDDED IN TOMORROW™

Oscillator Roadmap

	Product Family	Features	(Prod) [EOL]
High Performance	CY294x	1-PLL; Maximum Frequency: 2.1 GHz 1 Output; Diff[1] & SE[1]; 40/100 GbE; VCXO[2]; 0.11-ps RMS Jitter[3]; Ind[4]; 8-LCC (7 x 5, 5 x 3.2); 16-QFN	
	CY51x7	1-PLL; Maximum Frequency: 2.1 GHz 1 Output; Diff & SE; 40/100 GbE; VCXO; 0.11-ps RMS Jitter; Ind; 1.8 V/2.5 V/3.3 V; WAFER/DIE	
	CY2Xx (FleXO™)	1 PLL; Maximum Frequency: 690 MHz 1 Output; LVCMOS, LVDS, LVPECL Frequency Margining; 0.6-ps RMS Jitter; Ind; 6-LCC (7 x 5, 5 x 3.2); 8-TSSOP	
Standard Performance	CY25701	1-PLL; Maximum Frequency: 166 MHz 1 Output; CMOS; EMI[5]; 85-ps CCJ[6]; Ind; 3.3 V; 4-LCC (5 x 3.2)	
	CY2037/ 5037	1-PLL; Maximum Frequency: 133 MHz 1 Output; CMOS; 100-ps CCJ; Ind; 3.3 V/5.0 V; WAFER	
	CY5077	1-PLL; Maximum Frequency: 166 MHz 1 Output; CMOS; 75-ps CCJ; Ind; 1.8 V/2.5 V/3.0 V/3.3 V; WAFER	
	CY5057	1-PLL; Maximum Frequency: 170 MHz 1 Output; CMOS; EMI; <200-ps CCJ; Ind; 3.3 V/5.0 V; WAFER	

[1] Differential and single-ended outputs
[2] Voltage Controlled Crystal Oscillation
[3] Integrated phase noise across 12-kHz to 20-MHz offset
[4] Industrial grade: -40°C to +85°C
[5] Electro Magnetic Interference reduction using Lexmark profile
[6] Cycle-to-cycle Jitter

Products supported by Longevity Program unless noted

Concept
Samples
Production
EOL - LTB
EOL - LTS

Clock Buffer Roadmap

	Product Family	Features	(Prod) [EOL]
High Performance	CY2DPx/CPx	Maximum Frequency: 1.5 GHz 2-10 Outputs; LVPECL; 2.5 V/3.3 V 0.11-ps Additive Jitter[1]; Ind[2] 8/20-TSSOP; 8-SOIC; 32-TQFP	
	CY2DMx/DLx	Maximum Frequency: 1.5 GHz 2-10 Outputs; LVDS, CML; 2.5 V/3.3 V 0.11-ps Additive Jitter; Ind 8/20-TSSOP; 32-TQFP	
	CY230x/EP0x (Zero Delay)	Maximum Frequency: 220 MHz 2-9 Outputs; LVCMOS; 2.5 V/3.3 V/5 V 22-ps CCJ[3]; Ind; Auto A[4] 8/16-SOIC; 16-TSSOP; WAFER	
Standard Performance	CY230xNZ/ 2994x (Non-Zero Delay)	Maximum Frequency: 200 MHz 4-18 Outputs; LVCMOS 100-ps Op-Op Skew; Ind 2.5 V/3.3 V; 8-TSSOP, 16-SOIC	
	CY23FS04/08/FP12 (Zero Delay)	Maximum Frequency: 200 MHz 4-12 Outputs; LVCMOS; Fail Safe 200-ps CCJ; Ind; 2.5 V/3.3 V 16/28-SSOP	
	CY23S0x (Zero Delay)	Maximum Frequency: 133 MHz 5-9 Outputs; LVCMOS Spread Aware; 90-ps CCJ; Ind; 2.5 V/3.3 V; 8/16-SOIC; 16-TSSOP	
	CY7B99x (RoboClock™)	Maximum Frequency: 200 MHz; 8-13 Outputs Configurable Skew; 2.5 V/3.3 V/5.0 V 50-ps CCJ; Ind; 24-SOIC; 32-PLCC; 32/44/52,100-TQFP; 100-BGA	

[1] Additive RMS Phase Jitter
[2] Industrial grade: -40°C to +85°C
[3] Cycle-to-cycle Jitter
[4] AEC-Q100: -40°C to +85°C

Products supported by Longevity Program unless noted

Concept
Samples
Production
EOL - LTB
EOL - LTS

Timing Solutions Portfolio

Programmable | High-Performance | EMI Reduction | Automotive

	Clock Synthesizers	Oscillators	Clock Buffers
High Performance	**CY27410** 4-PLL; Max Freq: 700 MHz 12 Outputs; Diff[1] & SE[1]; PCIe 3.0 VCXO[2]; EMI[3]; 0.7-ps RMS Jitter[4] 1.8 V/2.5 V/3.3 V; Ind[5]; 48-QFN	NEW Q118 **CY27430** 4-PLL; Max Freq: 700 MHz 8 Outputs; Diff & SE; PCIe 3.0 VCXO; EMI; 0.7-ps RMS Jitter 1.8 V/2.5 V/3.3 V; Auto A[6] S[7]; 48-QFN	NEW **CY2941x/2x** 1-PLL; Max Freq: 2.1 GHz 1 Output; Diff & SE; 40/100 GbE VCXO; 0.11-ps RMS Jitter; Ind 8-LCC (7 x 5, 5 x 3.2)	NEW **CY51x7** 1-PLL; Max Freq: 2.1 GHz 1 Output; Diff & SE; 40/100 GbE VCXO; 0.11-ps RMS Jitter; Ind 1.8 V/2.5 V/3.3 V; WAFER/DIE	**CY2DPx/CPx** Max Freq: 1.5 GHz 2–10 Outputs; LVPECL; 2.5/3.3 V 0.11-ps Additive Jitter[8]; Ind 8/20-TSSOP; 8-SOIC; 32-TQFP	**CY2DMx/DLx** Max Freq: 1.5 GHz 2–10 Outputs; LVDS, CML; 2.5/3.3 V 0.11-ps Additive Jitter; Ind 8/20-TSSOP; 32-TQFP
	NEW **CY29430** 1-PLL; Max Freq: 2.1 GHz 1 Output; Diff & SE; 40/100 GbE VCXO; 0.11-ps RMS Jitter; Ind 16-QFN		Q320 **CY2Xx (FleXO™)** 1 PLL; Max Freq: 690 MHz 1 Output; LVCMOS, LVDS, LVPECL Freq Margining; 0.6-ps RMS Jitter Ind · 6-LCC (7x5, 5x3.2); 8-TSSOP			
Standard Performance	**CY254x/CY251x** 1–4 PLL; Max Freq: 200 MHz 3–9 Outputs; I²C; EMI; Low Power[9] 100-ps CCJ[10]; Ind; 1.8/2.5/3.0/3.3 V 8-SOIC; 8/16/20-TSSOP; 24-QFN	**CY229x/CY2238x** 3–4 PLL; Max Freq: 166 MHz 3–8 Outputs; CMOS; Low Power 200-ps PPJ[11]; VCXO; Ind; 3.3/5 V 8/16/20-SOIC; 16-TSSOP	**CY25701** 1-PLL; Max Freq: 166 MHz 1 Output; CMOS; EMI 85-ps CCJ; Ind 3.3 V; 4-LCC (5 x 3.2)	**CY2037/ 5037** 1-PLL; Max Freq: 133 MHz 1 Output; CMOS 100-ps CCJ; Ind 3.3/5.0 V; WAFER	**CY230x/EP0x (Zero Delay)** Max Freq: 220 MHz 2–9 Outputs; LVCMOS ; 2.5/3.3/5 V 22-ps CCJ; Ind[5]; Auto A 8/16-SOIC; 16-TSSOP; WAFER	**CY230xNZ/ 2994x (Non-Zero Delay)** Max Freq: 200 MHz 4–18 Outputs; LVCMOS 100-ps Op-Op Skew; Ind 2.5/3.3 V; 8-TSSOP, 16-SOIC
	CY2429x 1-PLL; Max Freq: 200 MHz 2-5 Outputs; HCSL, CMOS; EMI 75-ps CCJ; PCIe 1.1; Ind; Auto A 3.3 V; 16-TSSOP; 32-QFN	**CY2239x** 3–4 PLL; Max Freq: 400 MHz 5–8 Outputs; LVPECL, CMOS; I²C 400-ps PPJ; VCXO; 3.3 V Ind; Auto A E[12]; 16-TSSOP; 32-QFN	**CY5077** 1-PLLMax Freq: 166 MHz 1 Output; CMOS 75-ps CCJ; Ind 1.8/2.5/3.0/3.3 V; WAFER	**CY5057** 1-PLL; Max Freq: 170 MHz 1 Output; CMOS; EMI <200-ps CCJ; Ind 3.3/5.0 V; WAFER	**CY23FS04/08/FP12 (Zero Delay)** Max Freq: 200 MHz 4–12 Outputs; LVCMOS; Fail Safe 200-ps CCJ; Ind; 2.5/3.3 V 16/28-SSOP	Q319 **CY7B99x (RoboClock™)** Max Freq: 200 MHz; 8–13 Outputs Configurable Skew; 2.5/3.3/5.0 V 50-ps CCJ; Ind; 24-SOIC; 32-PLCC 32/44/52/100-TQFP; 100-BGA
	CY22800/801/CY2581x 1-PLL; Max Freq: 200 MHz 1-3 Outputs; CMOS; EMI 110-ps CCJ; VCXO; Ind 3.3 V; 8-SOIC; 8-TSSOP	**CY22050/150** 1-PLL; Max Freq: 200 MHz 6 Outputs; CMOS; I²C 250-ps PPJ; Ind[5] 2.5/3.3 V; 16-TSSOP			**CY23S0x (Zero Delay)** Max Freq: 133 MHz 5–9 Outputs; LVCMOS Spread Aware; 90-ps CCJ; Ind 2.5/3.3 V; 8,16-SOIC; 16-TSSOP	

[1] Differential and single-ended outputs
[2] Voltage Controlled Crystal Oscillation
[3] Electromagnetic interference reduction using Lexmark profile
[4] Integrated phase noise across 12-kHz to 20-MHz offset
[5] Industrial grade: -40°C to +85°C
[6] AEC-Q100: -40°C to +85°C
[7] AEC-Q100: -40°C to +105°C
[8] Additive RMS phase jitter
[9] Power Management options
[10] Cycle-to-cycle jitter
[11] Peak-to-peak period jitter
[12] AEC-Q100: -40°C to +125°C

Status: Concept | Development | Sampling | Production | EOL
Availability: QQYY | QQYY | QQYY

CY27410: High-Performance 4-PLL Clock Generator

Applications

Multifunction printers, digital TVs, Blu-ray recorders, home gateways, femtocells, routers and switches

Features

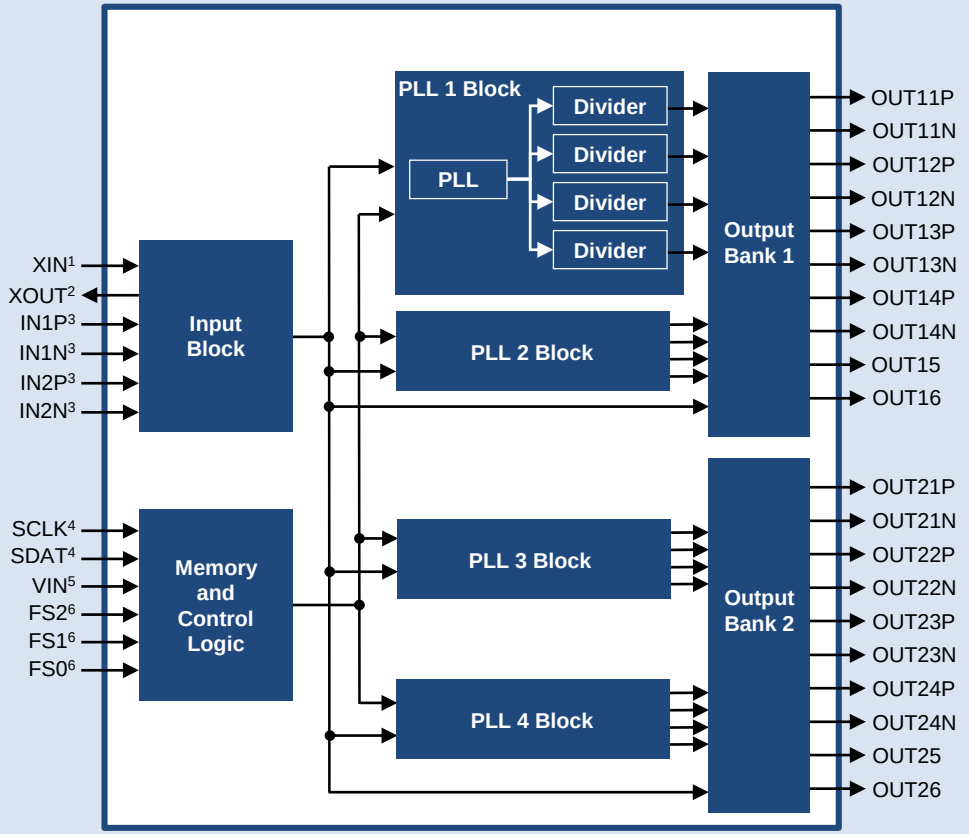
- **Twelve Outputs**
  - Eight configurable (differential or single-ended)
  - Four single-ended
- **Specifications**
  - High frequency: 700-MHz differential, 250-MHz single-ended
  - RMS phase jitter <0.7 ps (typical)
  - Reference clock support for PCIe 3.0, SATA 2.0 and 10 GbE
  - Industrial temperature grade
- **Additional Features**
  - Pin select and I^2C programming
  - Configurable as zero or non-zero delay buffer
  - Glitch-free frequency switching
  - Frequency Select option to choose from eight pre-programmed configurations
  - Early/late clocks
  - PLL cascading
  - Voltage-controlled frequency synthesis (VCFS)
- **RoHS-Compliant Package**
  - Available in a 7 mm x 7 mm 48-pin QFN package

Collateral

Datasheet: 4-PLL High-Performance Clock Generator (CY274X)

[1] Crystal input
[2] Crystal output
[3] Reference clock inputs
[4] Serial port
[5] Voltage input pin for VCFS
[6] Frequency select inputs

Four-PLL Spread-Spectrum Clock Generator



Availability

Production: Now

CY2941x/2x: High-Performance 1-PLL Programmable Oscillator

Applications

Routers, switches, base stations, storage area networks, network backplanes, wireless infrastructure, military/aerospace, video, test and measurement

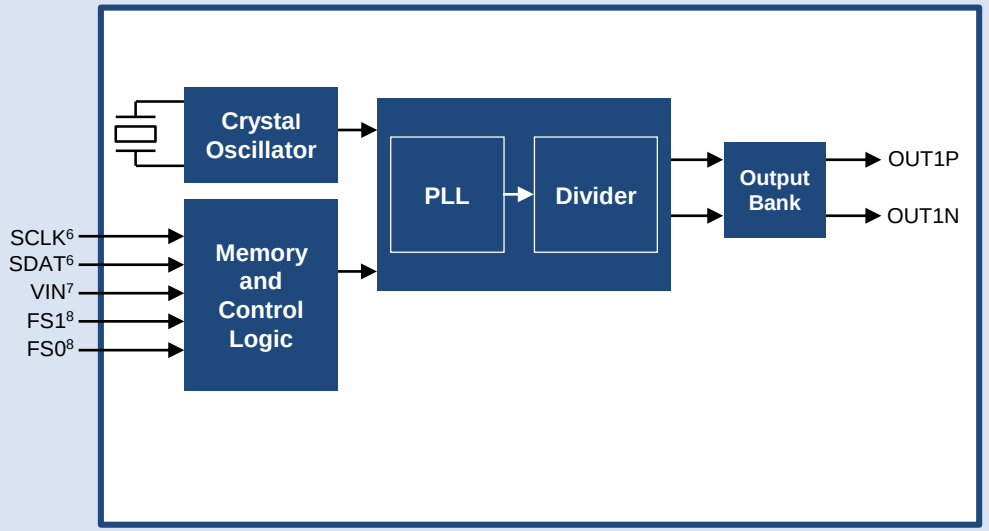
Features

- **Outputs**
  - LVPECL[1], LVDS[2], HCSL[3] and CML[4] outputs
- **Specifications**
  - High frequency: 2.1-GHz differential, 250-MHz single-ended
  - RMS phase jitter[5]: ~110 fs typical (12-kHz to 20-MHz frequency offsets) for output greater than 150 MHz
  - Voltage-controlled frequency synthesis (VCFS) with tuneable pull range of 50 ppm to 275 ppm
  - Pin select and I²C programming
  - VDD support: 1.8 V, 2.5 V, and 3.3 V
  - Industrial temperature grades (-40°C to +105°C)
- **RoHS-Compliant Packages**
  - Available in a 5 mm x 7 mm, 5 mm x 3.2 mm 8-pin LCC[9] package

Collateral

Datasheet: 1-PLL High-Performance Programmable Oscillator (CY2941x/2x)

High-Performance 1-PLL Programmable Oscillator



Availability

Production: Now

[1] Low-voltage positive emitter coupled logic
[2] Low-voltage differential signaling
[3] High-speed current steering logic
[4] Current mode logic
[5] The uncertainty of the clock rising and falling edge timing
[6] I²C input
[7] Voltage input pin for VCFS
[8] Frequency select inputs
[9] Leadless Ceramic Chip Carrier

CY29430: High-Performance 1-PLL Clock Synthesizer

Applications

Routers, switches, base stations, storage area networks, network backplanes, wireless infrastructure, military/aerospace, video, test and measurement

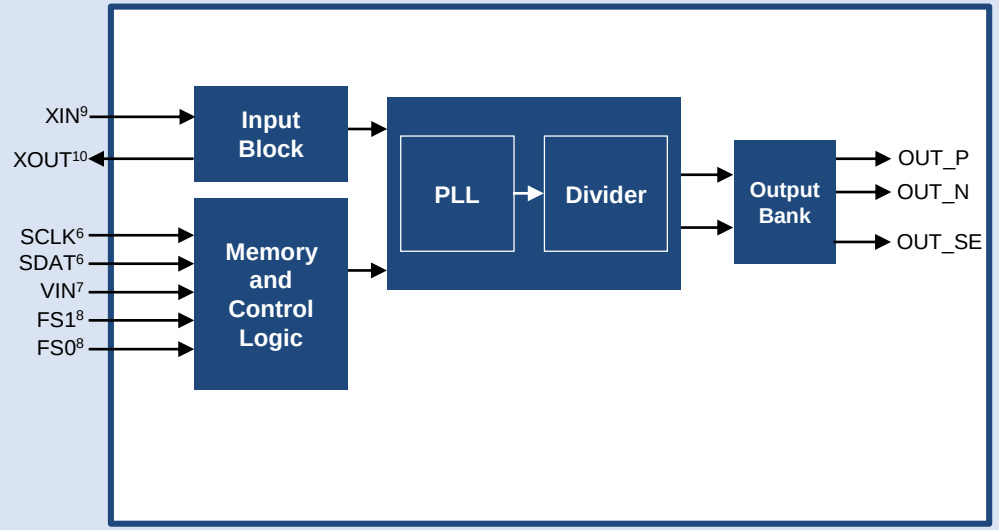
Features

- **Outputs**
  - LVPECL[1], LVDS[2], HCSL[3],CML[4] and LVCMOS outputs
- **Specifications**
  - High frequency: 2.1-GHz differential, 250-MHz single-ended
  - RMS phase jitter[5]: ~110 fs typical (12-kHz to 20-MHz frequency offsets) for output greater than 150 MHz
  - Voltage-controlled frequency synthesis (VCFS) with tuneable pull range of 50 ppm to 275 ppm
  - Frequency Select option to choose from four pre-programmed configurations
  - Pin select and I²C programming
  - VDD support: 1.8 V, 2.5 V, and 3.3 V
  - Industrial temperature grades (-40°C to +105°C)
- **RoHS-Compliant Package**
  - Available in a 3 mm x 3 mm 16-pin QFN[9] package

Collateral

Datasheet: 1-PLL High-Performance Clock Synthesizer (CY29430)

High-Performance 1-PLL Clock Synthesizer



Availability

Production: Now

[1] Low-voltage positive emitter coupled logic
[2] Low-voltage differential signaling
[3] High-speed current steering logic
[4] Current mode logic
[5] The uncertainty of the clock rising and falling edge timing
[6] I²C input
[7] Voltage input pin for VCFS
[8] Frequency select inputs
[9] Quad Flat No-leads


CYPRESS®
EMBEDDED IN TOMORROW™